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FINANCIAL RISK OF INSURANCE COMPANIES DURING AN INFLATIONARY PERIOD : A MEXICAN CASE

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RESUME

L'article comprend quatre parties et une annexe.

La première partie traite des concepts généraux de l'inflation et de ses effets sur les différentes activités d'une économie, dont les assurances.

La deuxième partie traite du processus d'inflation dont souffre le Mexique depuis 1970, et de ses effets sur l'économie du pays, notamment sur le système d'assurances.

La troisième partie traite des investissements d'une compagnie d'assurances au Mexique, du problème des risques financiers auxquels sont confrontés les assureurs mexicains et de la façon dont le marché s'est présenté à eux durant l'inflation.

La quatrième partie présente quelques conclusions.

L'annexe contient toutes les données relatives au marché mexicain des assurances, de la période 1984 à 1988, auxquelles il est fait référence en matière d'investissement, de rendement, de primes, etc.

FINANCIAL RISKS OF INSURANCE COMPANIES DURING AN INFLATIONARY PERIOD

BY ANTONIO MINZONI C., ANA LUISA SANTILLAN G.

INFLATION

A definition, probably we could accept for inflation, is the following one : "a generalized and sustained increase of prices in a country which represents a dynamic cumulative process which carries in itself the ferment of its own acceleration".

Inflation has become an essential part of dynamics of modem economies and it has widespread influences on insurance business as well. Inflation can be generally measured by suitable constructed indices, such as those related to cost of Living, perhaps the most commonly used or other indices related to wholesale prices, building cost and wages taking into account that an index needs to be chosen that can be expected to reflect closely the inflation sensitivity of relevant variables.

Sometimes the economic doctrina is speaking of a "structural inflation" with particular reference to latinamerican countries or to developing countries in general. On the other hand, developed countries are always experimenting a "Prices' inflation" involving another inflation tied to prices increasing and an economic depression is characterized by an important rate of unemployment too.

Inflation is affecting differently countries depending on their grade of development; and it is important to bear in mind that inflation, even if experimented in countries with a substancial growth, represents a negative factor which makes difficult planning and business control ; consequently, it delays economy's development in general ; in addition, high levels of inflation are tending to reduce, exponentially, trust of the community in his economic system and trust is basic element for a sound development of the economy ; when diminishing it harms the efficiency of the productive apparatus being able to produce, in the extreme, a collapse of the economy.

Associated to the inflation is always present a devaluating process of the currency and assuming that inflation involves an incresaing and sustained rise of general level of the prices in a country, we can realize its reproduction magnified and its permanent character, because the rise of prices of goods and services originates an increase in the production costs what, in the extreme, is reproducing in the prices.

INFLATION IN INSURANCE

From the viewpoint of insurance, inflation is of importance because it affects with differing force and varying time lags all the central activities of the insurer.

Inflation affects in a double way an insurance institution :

a) its real object,

b) its management.

Focusing our attention to life insurance, we realize that, little by little, endowment policies are losing the buyer's interest ; term insurance and flexible products (as universal life or similar) are sold taking into account the different rate of interest that insurance companies are using in their actuarial calculations of premiums and reserves from those that are offered by the money market ; but if we refer to non - life policies. we notice that claims indemnization is increasing more rapidly than premiums, specially if these are non indexed to a model reflecting the *cost* of living. Obviously, inflation produces an increase in salaries and it is possible that combining the different effects of inflation and growth in the cost, an insurance company shows a lack of capitalization reducing its solvency level and the possibility of self - financing as it occured in the mexican market.

Looking at the commercial management, there is a reduction in underwriting new business because insurance is considered, in general, as a second order good ; on the other hand, insurers are abandoning their policies. All this produces more competition and, in many cases, an unjustified reduction in tariff premiums which originates confusion in the insurance market and among the buyers too.

Financial effects are important because they are diminishing the importance of the patrimony of the institutions and, at the same time, of the technical reserves ; correspondingly, the &lays in the payments of the insured are increasing and between cedants and reinsurers too, with the consequence of a tension in the treasury of the institution.

Inflation modifies the financial situation and balance of an insurance company and considering that insurance is very sensitive to the change of interest rates, it is necessary to adapt tariff premiums to the claims and the principal factors affecting the financial situation of an insurance company during an inflationary period are delays :

a) in premiums adjustment ;

b) in the investment returns ;

c) in claim settlement (inflation inflates them) and ;

d) in the adjustment of the administration costs.

Due to that, the financial situation of an insurance company during inflation can turn from profit to a loss position.

At the same time it must be remembered that insurance is a strong element able to fight inflation because the monetary mass of premiums taken away from the circulation is invested, by the insurance sector, generally in financial instruments at long period with the consequence of the economy activation

INFLATIONARY PROCESS IN MEXICO

When it started. It is not easy to prove when the still acting inflationary process (even in a minor scale) started in the country; anyway we can assert that during the decade 1960 - 1970, Mexico enjoyed a stage of dynamic expansion with an average of 6% of increase in the G.N.P. (Gross National Product) ; this increase was realized due to two important factors :

a) stability in the exchange rate (1250 pesos for each U.S. dollar and this stability lasted more than 22 years - from April 1954 till August 31st 1976 when the peso started to float in the money market and a new exchange rate of nearly 20 pesos for each dollar was fixed and

b) prices stability all business, naturally, enjoyed it including insurance industry.

But at the end of the sixties, according to our knowledge, the mexican economy started to show structure insufficiencies located, initially, in a lack of acceleration of farming and animal sectors and then, as a consequence, unemployment in the industrial sector was noticed with an increase in commerce and services ; a deficit in the external sector and a consequent deterioration in the public finances was present

Effects in the economy.

Facing this panorama, during the period 1970-1976, an expansionary economic politics was put into work, seeking to rise the levels of the economic growth and trying to give a response to

a) the fall of the primary sector ,

b) the employment insufficency and

c) the disproportionate growth of the urban nucleuses.

We will mention that during 1971, the G.N.P. grew 3.4 %, during 1972, 7,3 % (in real terms) ; private sectors - including insurance - took advantage of this kind of economic stability but at the end of 1972, due to the structural deficiencies mentioned before, the "bonanza" situation did not endure any more ; during 1973 the energetic problem was the catalyst for an open appearance of the "ghost" called inflation.

Just the same year, OPEP was established to regulate oil production among oil producers countries.

Even if during 1973 the economic growth of the country registered a dynamic rate of 7,6 % in real terms (due to a particular trend of governmental effort to invest in the public sector) a lack of equilibrium was noticed in the economy; the commercial deficit was of 1.820 million US dollars and the external debt of the public sector reached the amount of 7.000 million US dollars with an increase of 39,6 % in comparison with 1972. The year 1974 can be considered as one of economic unstability ; internal economic situation suffered the adverse effects of an incipient world recession; mexican exports fell ; the service of the debt (interests) and the contraction of the private investment urged the public finance and the imports were mare expensive.

During 1976, the crisis of the mexican economy reached a peak ; G.N.P grew only 2,1 % and on August 31st, a new exchange rate was established with the US dollar ; from 12.50 to 19,50 pesos for each US dollar and the mexican peso started to float The 1977 year was one where the economy can be considered as "frozen" and starting 1978 Mexico fully entered the energetic economy of the warld and the country started a new period tied to the "ups and downs" of the world energetic market.

1979 - 1980 were years of a new dynamic economy; inflation rose more and more ; imports increased very much ; external debt too and the internal debt started to make its appearance in a sensitive way; the peso followed its floating, losing its adquisition power and a september 1st, the bank system was nationalized (better kept by the state) ; a general control of the currency was established in the country, leaving the insurance system out of the above mentionned "statization" (insurance system had till that date important ties with the bank system) and from that time till now, Mexico is living a "swinging" economy with a firm tendency, in the last year, to a certain stabilization

From 1976 to 1988, inflationary rates were the following :

1976 : 27,2%

1978 : 16%

1981 : 28,7%

1982 : 98,8%

1983 : 80.8%

1984 : 59,2%

1985 : 63,7%

1986 : 105.7%

1987 : 159,2%

1988 : 51,7%.

During the last year, the Economic Solidarity Pact worked and now, till March 31st 1990, the Stability and EconomicGrowth Pact - PECE- is controlling the economy of the country.

Effects in the insurance market.

Insurance activity, as an entity able to distribute risks, related to persons and to goods and to operate in the financial market, is the most affected by the loss of the adquisition power of money; therefore, in the mexican insurance market, we noticed the following :

a) an increase in the insured capitals just to cope with the changing values of the goods ; life and non - life activity produced the necessary instruments to let the insured capitals to maintain the inflation level ;

b) premiums income increased accordingly to the insured capitals but not in their actuarial structure so risk premiums were not -in many cases - sufficient to face claims payment affecting the solvency of insurance companies and in many cases returns from the investments were not sufficient to face the total losses in certain branches, even taking into account risk premium ;

c) claims were inflated specially in automobile branch (complete retention of the market only protected by X/L treaties) ; Civil Liability; Miscellaneous etc... with an adverse consequence for the companies ;

d) administration costs were rising ; adquisition cost increased too but as a fixed percentage branch and leveled in the all market, according to the authorization of the National Banking and Insurance Commission ;

e) investments product increased due to high interest rates acting in the market and during periods more than 100 - 135 - 150 %.

Investments and financial risks

Investments : As it is known, an investment involves the expectation of some positive rate of return that can be reasonably expected after sufficient analysis has been made. Traditionally, investment involves a minimum of risk, which dictates that principal and future income values be relatively certain; speculation involves taking higher risks with a lesser degree of certainty and safety. So all investment decisions resolve around the trade - off between risk and return, there is a positive relationship between the amount of risk assumed and the expected return.

Many forces contribute to variations in total return of securities specially during an inflationary period ; influences external to firms that cannot be controlled and that affect a large number of securities originate systematic risks ; influences internal to a firm can be controlled to a large degree and that are somewhat peculiar to industries or firms create unsystematic risks.

Financial risks : They are associated with the way in which a company finances its operations ; insurance company's financial risks - as in other firms - can be determined by an examinatiopn of its capital structure and if there is no debt affecting it, financial risks can be avoided and the firm's ability to meet financial obligations is the central concern for one examining financial risk. And with reference to an insurance company, financial risk can be measured by its ability to meet fixed as well as random payments.

To reduce financial risks, it is necessary to diversify adecuately the investment portfolio ; on the other hand, the investor must be able to forecast the market behaviour and one way to do that is to study the relationship between the market and the economy ; if any indicator reflecting the level of national economic activity consistently turns up and down before the stock market does, the analyst has a helpful forecasting tool.

And there are two market index patterns that can be considered leading indicators : first stock prices typically rise as business approach to the botton of the cycle and a second is that a stock tend to drop suddenly during initial phase of the economy tending to rise afterwards.

Looking at the mexiacn insurance market and at its legislation, with reference to investments, we find the following (General Law of Insurance Institutions issue January 14th 1985) :

1) Insurance institutions must invest their funds in such a way to allow them to maintain the adecuate conditions of security and the appropiate liquidity to the particular sake forseen for each type of fund (solvency and liquidity) ;

2) Total technical reserves must be invested up to 75 % in securities, established by the law and the remanent 25 % in other instruments as real estates, bonds, credit securities including those in US dollars ans special ones able to Cover Exchange Risks (FICORCA) managed by Central Bank. It must be pointed out that any kind of investment compulsory or free must be authorized by the Banking and Insurance Commission ;

3) Other rules of general character established by the law.

Table I (Appendix) registers quite a lot of data corresponding to investments in the different instruments according to the law ; their behaviour during the period 1984 - 1988 ; their returns ; other data correspond to direct premiums ; paid capital for the insurance institutions etc...

Before commenting any data contained in Table I, we would like to remember the most used instruments of investment in the market, including insurance :

CETES (Treasury certificates) granting high returns and whose issue in the market is very important ; insurance companies invested large percentages in Cetes ; and they were and still are backing the internal debt of the country ;

PETROBONOS bonuses tied to the oil industry and each bonus, in value, is the equivalent to an oil barrel ; so their return is variable according to oil price ;

BONOS DE INDEMNIZACION BANCARIA (Bonuses for bank indemnization) they were securities issued just after the bank system was nationalized to indemnify the private old stockholder of the banks. They are granting interests of some importance ;

AJUSTABONOS Adjustable bonds in local currency but adjustable in their value according to the consummer's index ;

TESOBONOS Credit securities issued by the federal treasury, where the Government takes the obligation to pay, at a certain period, an amount in local currency but equivalent to the value in foreign currency the US dollar calculated at the free exchange rate.

Other bonds, credit securities granting important returns.

Interest rates of the above mentioned instrument of investment are fixed pecentage during the period of issue but each issue has its own rate.

Statistics of Table I are pointing out the following :

1) - Investments corresponding to the Government grew annually (less during 1988 due to the Economic Solidarity Pact) ; fixed investments were more important and, it is supposed, with a minor risk ;

2) - Investments in private institutions were, the most, in variable securities, with a major risk for the investors ;

3) - Investments in loans were not very significant ; loans corresponding to life policies increased correspondingly to the actual situation ; in general, this kind of investment does not represent any risk for the investor ;

4) - Financial products (considering all type of investment, less dividend to the employees, income taxes paid by the insurance companies, reinsurance, any kind of devaluation) were increasing each year with an average of 33,4 % ;

5) - Profits of the market were always important even if during 1988, the market registered a negative increase ; a "red focus" for the investor of insurance companies to revise the investment politics ;

6) - Direct premiums - from which everything is originating - grew each year more than the inflationary index; but risk premiums, in the same cases, were not sufficient to face claims ;

7) - Claim ratios during the five years under study were variable ; there is a justification far 1985 due to the strong earthquake that affected Mexico city and other localities ; but in 1987 and 1988, the effect was due to an increase in the important amount paid for claims specially in some branches as automobile, miscellaneous, life (group an individual) and fire in some cases. The high claim ratios plus the expenses and the reserve put in a serious position more than one insurance company and losses- technical losses - were faced with the returns of the investment and not always they were sufficient ;

8) - Investments called "Deposits in Credit Institutions" increased substantially each year as the corresponding statistics are showing ; among them acquired special importance those in US dollars (nearly 50% of the total and about 15 - 18% of the total investment structure of the market) Deposits are including those corresponding to FICORCA, which were not of significance.

Analysing the data of Table I, we would like to affirm that notwithstanding the compulsory investments established by the law - what should have given a certain degree of guarantee to the investment returns- insurance companies underwent to important financial risks during the inflationary period and losing money as a consequence of that.

We are tempted to say the following :

a)- a very high percentage of investments were made in instruments strictly tied to the country's economy (CETES and similar) fit to finance the internal debt of the country ; so returns were depending upon that economy ;

b)- investment portfolios of the insurance companies were not too much diverdsified, i.-e. diversified in quantity but not in quality ; that wasn' "healthy" f a the investor but he had no other choice ;

c)- high returns from those securities started to diminish and, so, insurance institutions were losing a substantial part of their income, deteriorating their liquidity ;

d)- insurance companies were allowed to make some kind of innvestment through privatre Stock Exchange Offices (Casas de bolsa) and in some cases their management was poor and the institutions had some difficulties. In addition, the Stock Crack of October 1987 (local crack) made worse the situation of many insurance companies as for investment and their returns (f.e. some stocks of the market, not belonging to insurance system, whose value was- in pesos- 7.200 - 5.502 - 81.000 - 46.000 - on January 1st 1987, at the end of the same year had the following values : 620.- 590.- 9.450.- 5.000.- respectively having lost around 90 % of their initial value) ;

e)- investments in foreign currency - most in US dollars represented a minor financial risk for the institutions ; but returns are depending on foreign economies and this situation must be taken in serious consideration by the investor ;

f)- earthquake of November 1985 was an additional shock to the mexican economy as a whole affecting insurance institutions even taking into account the strong support of the reinsurance ;

g)- another financial risk of some importance can be visualized if the present interest rates of the market will diminish to be similar to those of developed countries : we refer to the inrerest rate established by the law for the actuarial calculation of life premiums and reserves; actually we are using 8% annually (formerly and till 1980 it was 4% ; then 6 % and from December 85,18".

Lower interest rate signifies more technical reserve for the life policy with all the repercussions in the inveshnent and their returns.

Inside the above mentionned framework of the investment economy insurance companies were operating during many years and the final result was a lack of capitalization for quite a few insurance companies (they are all local and in number 45 including two national) ;two professional reinsurers, two mutual and lack of liquidity too, putting in doubt their solvency.

Actually, studies have been made to establish in the market criteria of solvency for everybody devoted to the insurance activity as an institution.

Some final considerations

The mexican insurance market, since the first law for insurance companies was granted in December 1892 ; was living under the "blanket" of the law as for tariff premiums (equal for all market) investments ; policies conditions and all kind of paper used by the companies ; so its development important according to the figures we can disclose any moment was not if we compare premiums with N.G.P. only 1% in the last year and we are of the opinion that "blanket" was very useful in the beginning but now cannot resist any more.

In effect the same legislator feels that things must change and mexican insurance market will undergo to a "liberalization" very soon which will be very healthyf or the future development of the insurance market

We know that the new rules about investment will give the companies the faculty to invest up to 70% of their assets among securities of a "large menu" ; so the investor will have a very interesting and more diicult task to fulfill.

No doubt that the actuaries already involved in finance activity will fulfill a very important role helping investors in measuring as far as it will be possible the risks of investment they like to assume and, so, to make sound projections of the insurance activity to share a bigger part of the N.G.P.

Mexico will accept modem theories of forming portfolio of insurance companies and the basic elements of modem portfolio theory emanate from a series of propositions concerning rational behaviour set forth by Harry M. Markowitz.

Once the level of risk the investor is willing to assume is established, the Markowitz portfolio model provides a theoretical framework for the systematic selection of optimum portfolio. He bases his portfolio diversification theory on the fact that the riskiness of portfolio depends not only upon the attributes of securities considered individually but also their interrelationship.

We are of the opinion that to construct even inside insurance companies an efficient portfolio, that is portfolio of highest expected rates of return at a given level of risk, we require statistic inputs; once the inputs are determinedd and obtained, the remainder of solution is a problem of logic and mathematics. If the inputs are correct, the logic is generally valid and the mathematical methods properly applied produce the desirable output.

Mexico will follow the way of the modem theory of investment according to its needs and capacity.

Appendix TABLE I

INVESTMENT STRUCTURE OF THE MEXICAN INSURANCE MARKET - PERIOD 1984 - 1988

Position : 31 December each year - Amounts are face values - expressed in 000 000 000 mexican pesos

	1984	%	1985	%	1986	%	1987	%	1988	%
INVESTMENT in securities	153	101	204	33	460	125	1.279	278	2.262	7'7
a/ Government +										
b/ National Credit Inst.	113	88	139	23	244	75	459	88	1.347	193
c/ Private Institutions	23	53	32	39	76	138	270	255	386	43
Fluctuations	17	750	33	94	140	324	550	293	529	(-4)
Déposits in credit Insuit	48	50	106	111	243	129	513	111	534	4
Loans	24	60	69	188	120	74	211	76	511	142
of wich correspond to										
life policies	15		34		76		106		137	
Real Estate	24	50	45	88	86	91	304	254	607	99
TOTAL INVESTMENT	249	79	424	70	909	114	2.306	154	3.914	69
Financial product	67		144		310		826		1.418	
in percentage over invest.		27		34		34		36		36
Direct premiums	254	75	435	71	826	99	1.993	141	4.536	128
Dim claims	102		298		390		1.188		3.057	
as percentage of premiums		40		69		47		60		67
Profit of the year	27	170	50	85	85	70	141	66	117	(-17)
Total Assets	506	65	1,018	101	1952	109	4.791	145	7.950	60
Consumer price index		59,2		63,7		105,7		159,2		59,7

Direct premiums were considered as they were earned.

FICORCA : After the nationalization of the bank system and the establishment of the general control of the currency on September 1982; during the following year it was instrumented FICORCA (Fideicomiso Riesgos Cambiarios - Trusteeship for Exchange Risks) through which the private sector under certain conditions and circumstances, was able to change its loan in foreign currency in mexican pesos - The Central Bank managed the operation so the industrial activity of the country was able to follow its path. Insurance companies were allowed to invest in that kind of operation.

SYNOPSIS OF THE PAPER

The paper can be divided in four parts plus an appendix :

The first part is handling general concepts of the inflation anf its effects on the different activities of an economy, insurance included ;

The second part is handling the process of the inflation in Mexico since 1970 ; its effects on the country's economy and specially on the insurance system ;

The third part is Beating investments of an insurance company in Mexico ; the problem of financial risks of the mexican insurers and how the market faced them during the inflation.

The fourth part presents some conclusions with respect to the paper.

Appendix: : it contents all the data referred to investments, returns, premiums etc of the Mexican insurance market for the period 1984-1988.

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